.14

BIOCHEMICAL AND BIOPHYSICAL

Research Communications

UNIVERSITY OF HAWAII
LIBRARY
PERIODICAL

EDITORS:

Paul Berg
I. C. Gunsalus
B. L. Horecker
W. D. McElroy
Boris Magasanik
Jacques Monod
Howard K. Schachman

Volume 23 • 1966

ACADEMIC PRESS

New York and London

Copyright© 1966, Academic Press Inc.

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the Publishers.

Made in the United States of America

676515

Contents of Volume 23

QH30
B358
V. 23

Number 1, April 6, 1966

M. P. M. Herrmann-Erlee. The *in Vitro* Effect of Parathyroid Extract on the Amount of NADP in Embryonic Mouse Calvaria 1
Yoshio Imai and Ryo Sato. Evidence for Two Forms of P-450 Hemoprotein in Microsomal Membranes 5
P. Madhusudanan Nair and H. S. Mason. Reconstitution of Cytochrome *c* Oxidase from an Apo-Enzyme and CU (I) 12
Douglas J. Horgan, Edwin C. Webb, and Burt Zerner. A Large Scale Purification of Crystalline Pig Liver Carboxylesterase 18
Douglas J. Horgan, Edwin C. Webb, and Burt Zerner. Determinations of the Normality of Pig Liver Carboxylesterase Solutions 23
Earle Stellwagen. Carboxymethylation of the Histidyl Residues of Horse Heart Cytochrome C 29
Kyoichi Kobashi, Jun'ichi Hase, and Tomoyoshi Komai. Evidence for the Formation of an Inactive Urease-Hydroxamic Acid Complex 34
Liane Reif and Harold Amos. A Dialyzable Inducer for the Glutamotransferase of Chick Embryo Retina 39
S. R. de Kloet and P. J. Strijkert. Selective Inhibition of Ribosomal RNA Synthesis in Saccharomyces Carlsbergensis by 5-Fluorouracil 49
Ethel Moustacchi and D. H. Williamson. Physiological Variations in Satellite Components of Yeast DNA Detected by Density Gradient Centrifugation 56
M. Waks and A. Alfsen. The Hemoglobin Binding and Activation by Haptoglobins: Spectrophotometric and Potentiometric Measurements 62
Melvin Blecher. On the Mechanism of Action of Phospholipase A and Insulin on Glucose Entry into Free Adipose Cells 68
R. B. Beechey, Caroline T. Holloway, I. G. Knight, and A. M. Roberton. Dicyclohexylcarbodiimide — An Inhibitor of Oxidative Phosphorylation 75
D. O. Hall, J. F. Gibson, and F. R. Whatley. Electron Spin Resonance Spectra of Spinach Ferredoxin 81
Frank Maley, John F. McGarrahan, and Rudolph DelGiacco. Galactosamine: A Precursor of Glycogen Glucosamine 85
R. Axén, E. Gross, and B. Witkop, J. V. Pierce, and M. E. Webster. Release of Kinin Activity from Human Kininogens and Fresh Plasma by Cyanogen Bromide 92
E. E. Bittar. On the Natriferic Action of 8-Lysine Vasopressin 96
Benno Hess and Karl Brand. Continuous Oscillations in a Cell-Free Extract of *S. carlsbergensis* 102
Errata 109

Number 2, April 19, 1966

Nicholas W. Seeds and Thomas W. Conway. Reversal by GTP of Soluble RNA Inhibition of Polyphenylalanine Synthesis 111
Patricia McLean, Josiah Brown, Keith Greenslade, and Keith Brew. Effect of Alloxan-Diabetes on the Glucose-ATP Phosphotransferase Activity of Adipose Tissue 117
Robert M. Bookchin, Ronald L. Nagel, Helen M. Ranney, and Alan S. Jacobs. Hemoglobin C_{Harlem}: A Sickling Variant Containing Amino Acid Substitutions in Two Residues of the β-Polypeptide Chain 122
H. B. Bensusan, S. D. McKnight, and M. S. R. Naidu. The Demonstration of a Possible Common Mechanism of Lathyrogenic Activity 128
S. S. Lehrer and Gerald D. Fasman. The Fluorescence of Lysozyme and Lysozyme Substrate Complexes 133
E. G. Cleary, L. B. Sandberg, and D. S. Jackson. The Incorporation of Lysine into Growing Elastin 139
Jean Le Gall and Nicole Dragoni. Dependance of Sulfite Reduction on a Crystallized Ferredoxin from *Desulfovibrio gigas* 145
Jack L. Kostyo. Changes in Polyamine Content of Rat Liver Following Hypophysectomy and Treatment with Growth Hormone 150
Betty Davidson, Nancy Tooney, and Gerald D. Fasman. The Optical Rotatory Dispersion of the β Structure of Poly-L-Lysine and Poly-L-Serine 156
Robert Townend, T. F. Kumosinski, Serge N. Timasheff, Gerald D. Fasman, and Betty Davidson. The Circular Dichroism of the Structure of Poly-L-Lysine 163

Barbara Zmudzka and D. Shugar. Phosphodiesterases Active Against Glucose Cyclic Phosphates .. 1
Chuan-pu Lee and Lars Ernster. Competition between Oxidative Phosphorylation and Energy-Linked Pyridine Nucleotide Transhydrogenation in Submitochondrial Particles 1
F. J. Castellino and R. Barker. The Binding-Sites of Rabbit Muscle Aldolase 1
L. Lorand and H. H. Ong. Studies on Fibrin Crosslinking. Nature of the Acceptor Groups in Transpeptidation 1
Regitze R. Shoup, H. Todd Miles, and Edwin D. Becker. NMR Evidence of Specific Base-Pairing between Purines and Pyrimidines 1
Gordon R. Kepner and Robert I. Macey. Red Cell Membrane ATPase: Radiation Inactivation Estimates of "Size" 2
J. F. A. Chase, B. Middleton, and P. K. Tubbs. A Coenzyme A Analogue, Desulpho-CoA; Preparation and Effects on Various Enzymes 2
Wai Yiu Cheung. Inhibition of Cyclic Nucleotide Phosphodiesterase by Adenosine 5′-Triphosphate and Inorganic Pyrophosphate 2
Leonard Schwartzman, Alberta Blair, and Stanton Segal. A Common Renal Transport System for Lysine, Ornithine, Arginine and Cysteine 2

Number 3, May 3, 1966

Hiroya Kawasaki, Takao Sato, and Goro Kikuchi. A New Reaction for Glycine Biosynthesis 2
Albert Himoe and George P. Hess. On the Elucidation of the pH Dependence of Chymotrypsin Catalyzed Reactions at Alkaline pH 2
Stanley Bucksер and Howard Diamond. Increase in Sodium Concentration of the Isolated Frog Retina after Light Stimulation 2
B. F. Erlanger, S. M. Vratsanos, N. Wassermann, and A. G. Cooper. A Chemical Investigation of the Active Center of Pepsin 2
Robert A. Wallace, Roger L. Peterson, Carl Niemann, and George E. Hein. Activation of Chymotrypsin Catalyted Hydrolyses by 9-Aminoacridine 2
R. L. Soffer and N. Mendelsohn. Incorporation of Arginine by a Soluble System from Sheep Thyroid 2
Fr. Huijing and J. Larner. On the Effect of Adenosine 3′,5′ Cyclophosphate on the Kinase of UDPG:α-1,4-Glucan α-4-Glucosyl Transferase 2
W. Cammer, J. B. Schenkman, and R. W. Estabrook. EPR Measurements of Substrate Interaction with Cytochrome P-450 2
P. G. Gordon, W. A. Jerram, and R. B. Johns. Photolysis of L-Tyrosine and Photomodification of Peptides 2
Peter Riesz. The Role of Metal Ions in the γ-Radiolysis of Dry Metal-Ribonuclease Complexes ... 2
H. Leigh Auleb, Michael J. Dowler, and Henry I. Nakada. Enzymatic ATP Formation from ADP and Phosphoramidate 2
Cecil F. Tester and Leon Dure III. Selective Precipitation of Monomeric Ribosomes by Bentonite .. 2
Abel Lajtha and Jeno Toth. Instability of Cerebral Proteins 2
Rudolf Suss, Gunter Blobel, and Henry C. Pitot. Rat Liver and Hepatoma Polysome-Membrane Interaction *in Vitro* 2
Simon Bouchilloux and Claude Cheftel. Biosynthesis of Thyroglobulin: Absence of ^{14}C-Glucosamine Incorporation on Thyroid Polysomes 3
Alan D. Elbein and W. Z. Hassid. The Enzymatic Synthesis of a Glucomannan 3
Charles R. Cantor and Thomas H. Jukes. Repetitions in the Polypeptide Sequence of Cytochromes 3
Sakari Nara, Ikuo Igaue, Benedict Gomes, and Kerry T. Yasunobu. The Prosthetic Groups of Animal Amine Oxidases 3
Howard K. Kuramitsu. The Effects of Adenine Nucleotides on Pig Heart Malate Dehydrogenase .. 3
Anthony W. Norman. Vitamin D Mediated Synthesis of Rapidly Labeled RNA from Intestinal Mucosa 3
E. Toro-Goyco, A. Rodriguez, and J. del Castillo. Detection of Anti-Insulin Antibodies with a New Electrical Technique: Lipid Membrane Conductometry 3
C. Moos, J. E. Estes, and E. Eisenberg. Exchange of F-Actin-Bound Nucleotide in the Presence and Absence of Myosin 3
Erratum 3

Number 4, May 25, 1966

H. H. Ramsey. Stimulation of Staphylococcal Nitrate Reductase Production by Chloramphenicol 353
Graham Palmer, Richard H. Sands, and L. E. Mortenson. Electron Paramagnetic Resonance Studies on the Ferredoxin from *Clostridium pasteurianum* 357
H. B. Lukins, S. H. Tham, P. G. Wallace, and Anthony W. Linnane. Correlation of Membrane Bound Succinate Dehydrogenase with the Occurrence of Mitochondrial Profiles in *Saccharomyces cerevisiae* 363
W. S. Walerych, S. Venkataraman, and B. Connor Johnson. The Methylation of Transfer RNA by Methyl Cobamide 368
L. W. Wendt, K. A. Ippen, and Raymond Valentine. General Properties of F-Pili 375
Martin Senn and F. W. McLafferty. Automatic Amino-Acid-Sequence Determination in Peptides 381
K. Folkers, H. W. Moore, G. Lenaz, and L. Szarkowska. Organic Structural Specificity of Coenzyme Q for Biological Activity 386
W. Erbe, J. Preiss, R. Seifert and H. Hilz. Increase in RNase and DPNase Activities in Ascites Tumor Cells Induced by Various Cytostatic Agents 392
Don C. Zimmerman. A New Product of Linoleic Acid Oxidation by a Flaxseed Enzyme 398
W. Schoner, R. Kramer, and W. Seubert. On the Role of Phosphorylated Intermediates in Sodium and Potassium Stimulated ATP-Hydrolysis 403
R. W. F. Hardy and E. Knight, Jr. Reduction of N_2O by Biological N_2-Fixing Systems 409
David M. Geller. Kinetics of Light-Induced Absorbance Changes in *Rhodospirillum rubrum* Extracts 415
R. L. Erikson and J. A. Gordon. Replication of Bacteriophage RNA: Purification of the Replicative Intermediate by Agarose Column Chromatography 422
Serge Lissitzky, Claude Simon, Marie Roques, and Janine Torresani. Thyroglobulin Maturation in Rat and Nomenclature of Thyroglobulin-Like Proteins 429
Allan Lipton and Arthur Weissbach. The Formation of Circular DNA after Lysogenic Induction 436
C. Letendre, A. M. Michelson, and M. Grunberg-Manago. Active Sites of t-RNA. I-Oligonucleotide Inhibition of Amino Acid Attachment 442
Richard A. Harvey and M. Grunberg-Manago. Identification of the Nucleoside Monophosphate End-Group on the Product of the Polynucleotide Phosphorylase Reaction 488
Irving H. Goldberg and Koji Mitsugi. Sparsomycin, an Inhibitor of Aminoacyl Transfer to Polypeptide 453
D. W. Yates and P. B. Garland. The Partial Latency and Intramitochondrial Distribution of Carnitine-Palmitoyltransferase (E.C.2.3.1.-), and the CoASH and Carnitine Permeable Space of Rat Liver Mitochondria 460
Y. Araki, R. Shirai, A. Shimada, N. Ishimoto, and E. Ito. Enzymatic Synthesis of Cell Wall Mucopeptide in a Particulate Preparation of *Escherichia coli* 466
N. R. Ballal, P. K. Bhattacharyya, and P. N. Rangachari. Perillyl Alcohol Dehydrogenase from a Soil Pseudomonad 473
C. J. Van den Berg, P. Mela, and H. Waelsch. On the Contribution of the Tricarboxylic Acid Cycle to the Synthesis of Glutamate, Glutamine and Aspartate in Brain 479
Seymour B. Koritz. The Energy Linked Synthesis of Pregnenolone in Beef Adrenal Cortex Mitochondria 485
Frank E. Young and Andrew P. Jackson. Extent and Significance of Contamination of DNA by Teichoic Acid in *Bacillus subtilis* 490
T. Devenyi, S. J. Rogers, and R. G. Wolfe. Reversible Activation and Inactivation of Mitochondrial Malate Dehydrogenase with Para-Hydroxymercuribenzoate 496
Kai Haber. Evidence that the Dark Repair System of Coliphage T4 is Controlled by the Vibral Genome 502
George P. Studzinski and Larry S. Cohen. Mitomycin C Induced Increases in the Activities of the Deoxyribonucleases of HeLa Cells 506
Sadako Inoue and Yasuo Inoue. Nuclear Magnetic Resonance Study of Sulfated Mucopolysaccharides 513
Y. Araki, A. Shimada, and E. Ito. Effect of Penicillin on Cell Wall Mucopeptide Synthesis in a *Escherichia coli* Particulate System 518
Regina Pietruszko, Albert Clark, John M. H. Graves, and Howard J. Ringold. The Steroid Activity and Multiplicity of Crystalline Horse Liver Alcohol Dehydrogenase 526
Louise A. Anderson and Robert M. Smillie. Binding of Chloramphenicol by Ribosomes from Chloroplasts 535
R. E. Alving, E. Moczar, and K. Laki. An N-Acetylated Peptide Chain in Tropomyosin 540
Ivan D. Goldberg, Darrel D. Gwinn, and Curtis B. Thorne. Interspecies Transformation between *Bacillus Subtilis* and *Bacillus Licheniformis* 543
W. A. Rombauts. The Non-Acetylated N-Terminal Sequence of the Green Tomato Atypical Mosaic Virus Coat Protein (G-TAMV) 549

Louis Katz and Sheldon Penman. The Solvent Denaturation of Double-Stranded RNA from Poliovirus Infected HeLa Cells 5
J. R. Brown, N. Lerman, and Z. Bohak. The Amino Acid Sequences around the Disulfide Bonds of Soybean Trypsin Inhibitor 5
I. Yamazaki, R. Nakajima, and K. Yokota. Reversible Conversion of Horseradish Paraperoxidase (Low Spin) into Normal Peroxidase (High Spin) by Sulfhydryl Reagents 5
Edward Yeargers, Fouad R. Bishai, and Leroy Augenstein. On the Nature of Tyrosine Phosphorescence from Proteins 5
David Freifelder. Replication of DNA during F'Lac Transfer 5
Erratum 5

Number 5, June 13, 1966

Jürgen Koch and E. L. R. Stokstad. Partial Purification of A 2-Oxo-Glutarate: Glyoxylate Carboligase from Rat Liver Mitochondria 5
J. Moacanin and Robert Simha. Non-Randomness in Base Sequence of DNAs 5
Marietta L. Baginsky and F. M. Huennekens. Electron Transport Function of a Heat-Stable Protein and a Flavoprotein in the Oxidative Decarboxylation of Glycine by *Peptococcus glycinophilus* 6
S. C. Riva. Interactions of Methylated Acridines with DNA 6
Homer A. Lozeron and Waclaw Szybalski. Suppression of RNA Precipitation during Cs_2SO_4 Density Gradient Centrifugation 6
D. W. Ingles, J. R. Knowles, and J. A. Tomlinson. Specificity in Deacylation of Acyl-α-Chymotrypsins 6
Mendel Friedman. A Novel Differential Titration to Determine pK Values of Phenolic Groups in Tyrosine and Related Aminophenols 6
Elijah Adams and Gloria Rosso. Constitutive and Inducible Isozymes of α-Ketoglutaric Semialdehyde Dehydrogenase in *Pseudomonas* 6
David T. Denhardt. A Membrane-Filter Technique for the Detection of Complementary DNA 6
Gerald P. Brierley and R. N. Bhattacharyya. Activation of Mg^{++} Accumulation in Isolated Heart Mitochondria by Zn^{++} and by p-Chloromercuribenzene Sulfonate 6
D. Roy Davies. Acriflavine Inhibition of Dark Repair and Late Generation Death 6
Charles R. Heisler and H. Y. Yang. Non-Stoichiometric Sulfhydryl Loss with Vitamin K_5 6
A. M. Municio and A. Vega. The Influence of Aspartic-Semialdehyde on the Biosynthesis of Diaminopimelic Acid by *E. coli* 6
Kazuhiko Ito and Masamiti Tatibana. Operation of Orotic Acid Pathway as the Major Source of Pyrimidines in the Hematopoietic Mouse Spleen 6
Mitsuyoshi Matsuo, Mikio Yamazaki, and Yoshiko Kasida. Biosynthesis of Skimmianine 6
T. G. Beridze, M. S. Odintsova, N. A. Cherkashina, and N. M. Sissakian. The Effect of Nucleic Acid Synthesis Inhibitors on the Chlorophyll Formation by Etiolated Bean Leaves 6
Kazuoki Kuratomi, J. Michael Poston, and Earl R. Stadtman. Synthesis of Co-Methyl Cobalamin by Cell-Free Extracts of *Clostridium thermoaceticum* 6
Ernest Kun and Pierre Volfin. Metabolic Differences between Mitochondria Isolated from Various Tissues 6
Ernest Kun, Horace H. Loh, and Pierre Volfin. Tissue Specific Differences in Rate Limiting Factors of Glutamate Metabolism in Enzyme Systems of Kidney and Liver 7
Stephen A. Lesko, Jr. and Arthur J. Emery, Jr. Subunit Form of Calf Thymus DNA 7
Margaret J. Conover, J. S. Thompson, and Gerald D. Shockman. Autolytic Enzyme of *Streptococcus faecalis:* Release of Soluble Enzyme from Cell Walls 7
Erhard Gross and Bernhard Witkop. A Convenient Method for the Preparation of S-Peptide from Bovine Pancreatic Ribonuclease 7
David B. Millar and Maxime MacKenzie. The Helix-Coil of *E. coli* S-RNA as Measured by Fluorescence Polarization 7
Anne Dutton, Margie Adams, and S. J. Singer. Bifunctional Imidoesters as Cross-Linking Reagents 7
Jerry Hsueh-Ching Wang and A. T. Matheson. The Possible Role of Sulfhydryl Groups in the Dimerization of 70S Ribosomes from *Escherichia coli* 7
John de Jersey, Alex A. Kortt, and Burt Zerner. On the Mechanism of Hydrolysis of N-Acylamino Acid Nitrophenyl Esters 7
D. F. Wilson and B. Chance. Reversal of Azide Inhibition by Uncouplers 7

N. Chandrasekhar, A. J. Osbahr, and K. Laki. Identification of Sialic Acids in Human and Bovine Fibrinogen 757
Jacques Nunez, Jean Mauchamp, Jacques Pommier, Tanasije Cirkovic, and Jean Roche. Relationship between Iodination and Conformation of Thyroglobulin 761
Richard L. Katzman and Edwin H. Eylar. The Isolation and Characterization of a Trisaccharide from Porcine Submaxillary Glycoproteins 769
D. J. H. Brock and Konrad Bloch. Control of the Synthesis of Long-Chain Fatty Acids and Triacetic Acid in *E. coli* 775
Erratum 781

Number 6, June 21, 1966

W. R. Chesbro, D. Stuart, and J. J. Burke, II. Multiple Molecular Weight Forms of Staphylococcal Nuclease 783
W. Handschack and R. Lindigkeit. Degradation of Accumulated Different Chloramphenicol-RNA of *Bacillus megaterium* during Treatment with Actinomycin D 793
R. A. Cowman and H. E. Swaisgood. Temperature-Dependent Association-Dissociation of *Streptococcus lactis* Intracellular Proteinase 799
David B. Millar and Maxime MacKenzie. The Acid-Induced Aggregation *of E. coli* S-RNA 804
M. E. Kirtley and D. E. Koshland, Jr. The Introduction of a "Reporter" Group at the Active Site of Glyceraldehyde-3-Phosphate Dehydrogenase 810
W. Franz and K. Krisch. Isolation and Properties of a Carboxylesterase from Pig Kidney 816
Richard Malkin and Jesse C. Rabinowitz. The Reconstitution of Clostridial Ferredoxin 822
Joyce (Bruner) Lorand, T. Urayama, and L. Lorand. Transglutaminase as a Blood Clotting Enzyme 828
Robert B. van Huystee and Joe H. Cherry. Hybridization of Messenger RNA with DNA from Plants 835
Ronal G. Rosso and Elijah Adams. Substrate Binding to Hydroxyketoglutarate Aldolase 842
G. R. Whistance, D. R. Threlfall, and T. W. Goodwin. Incorporation of G-^{14}C Shikimate and U-^{14}C Para-Hydroxybenzoate into Phytoquinones and Chromanols 849
C. W. M. Orr. The Inhibition of Catalase by Ascorbic Acid 854
Sue Hanlon. The Importance of London Dispersion Forces in the Maintenance of the Deoxyribonucleic Acid Helix 861
E. E. Bittar. Effect of Aldosterone on Na Efflux in Single Maia Muscle Fibres 868
Jan M. Anderson, D. C. Fork, and J. Amesz. P 700 and Cytochrome *F* in Particles Obtained by Digitonin Fragmentation of Spinach Chloroplasts 874
Erratum 880
Author Index 881